

**REMARKS**

The Examiner is thanked for the thorough examination and search of the subject patent application.

Claims 15, 17, 27 and 30 are pending; Claims 15 and 27 have been currently amended; Claims 1-14, 16, 18-26, 28-29, and 31-32 have been canceled.

**Response to Claim Rejections under 35 U.S.C. 102 and 103**

Applicants respectfully traverse the rejections for at least the reasons set forth below.

**Response to Claims 15 and 17**

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As currently amended, independent Claim 15 is recited below:

15. A method for fabricating a circuit component, comprising:
    - providing a semiconductor wafer and a gold bump or pad over said semiconductor wafer;
    - cleaning said gold bump or pad, wherein said cleaning said gold bump or pad comprises ion milling; and
    - contacting said gold bump or pad with a testing probe.
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**Section I:**

*Reconsideration of the rejection of Claims 15 and 17 rejected under 35 U.S.C. 102(b) as being anticipated by Tsukamoto et al. (U.S. Pat. 5,554,859) is requested based on the following paragraphs.*

Applicants respectfully assert that the method claimed in Claim 15 patentably distinguishes over the citation by Tsukamoto et al. (US5,554,859).

Tsukamoto et al. teach a method for fabricating a circuit component comprising forming a gold film over a semiconductor substrate 3001, patterning the gold film to an electrode shape using a lithographic resist process, and etching the electrode 3007 to a desired shape by Ar ion-milling. ~See Fig. 3B and col. 19, lines 17-23~

However, Tsukamoto et al. fail to teach, hint or suggest the step of contacting said gold electrode 3007 with a testing probe, as claimed in Claim 15.

Tsukamoto et al. teach an ion milling process is used to etch a gold film to a desired shape, where an extraneous undesired part is removed from the gold film in order to form a desired shape, but fail to teach the ion milling process can be used to clean a gold bump or pad without removing an extraneous part from the gold bump or pad.

The Examiner considers that “The ion milling process of Tsukamoto removes extraneous undesired gold layer, which would inherently remove micro contaminants from the patterned contact point or metal bump. Consequently, the ion milling process of Tsukamoto does disclose

cleaning the patterned contact point or metal bump." ~ *See lines 7-11 in point 4, in the last Office Action mailed Mar. 27, 2007 ~*

The above Examiner's statement is incorrect because a cleaning process, as known by those having ordinary skill in the art, removes contaminants but does not remove an extraneous portion of the underlying structure. Thus Tsukamoto's etching process fails to anticipate applicant's invention as claimed.

Withdrawal of rejection under 35 U.S.C. 102 (b) to Claim 15 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent Claim 15 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claim 17 patently defines over the prior art as well.

## **Section II:**

*Reconsiderations of the rejection of Claims 15 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 2003/0006271) in view of Bakker et al. (US 2004/0218157) are requested based on the following paragraphs.*

Applicants respectfully assert that the method claimed in Claim 15 patently distinguishes over the citation by Chen et al. (US 2003/0006271) in view of Bakker et al. (US 2004/0218157).

Chen et al. teach a method for fabricating a circuit component comprising cleaning a gold pad, wherein said cleaning said gold pad comprises ion milling. ~ *See lines 1-6, in para. [0013]*

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Bakker et al teach a method of cleaning a layer using ion milling. ~ *See paragraph [0054]*

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However, Chen et al. and Bakker et al, singly or in combination, fail to teach, hint or suggest the step of contacting the gold pad with a testing probe, as claimed in Claim 15.

Withdrawal of rejection under 35 U.S.C. 103 (a) to Claim 15 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent Claim 15 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claim 17 patently defines over the prior art as well.

### **Response to Claims 27 and 30**

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As currently amended, independent Claim 27 is recited below:

27. A method for fabricating a circuit component, comprising:

    forming a patterned metal bump over a semiconductor wafer, wherein said patterned metal bump has a top surface and a side wall discontinuously joined with said top surface;

    cleaning said patterned metal bump, wherein said cleaning said patterned metal bump comprises ion milling; and

    contacting said patterned metal bump with a testing probe.

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*Reconsideration of the rejection of Claims 27 and 30 rejected under 35 U.S.C. 102(b) as being anticipated by Tsukamoto et al. (U.S. Pat. 5,554,859) is requested based on the following paragraph.*

Applicants respectfully assert that the method claimed in Claim 27 patentably distinguishes over the citation by Tsukamoto et al. (US5,554,859).

Tsukamoto et al. teach a method for fabricating a circuit component comprising forming a metal film over a semiconductor substrate 3001, patterning the gold film to an electrode shape using a lithographic resist process, and etching the electrode 3007 to a desired shape by Ar ion-milling. ~See Fig. 3B and col. 19, lines 17-23~

However, Tsukamoto et al. fail to teach, hint or suggest the step of contacting said metal electrode 3007 with a testing probe, as claimed in Claim 15.

Tsukamoto et al. teach an ion milling process is used to etch a metal film to a desired shape, where an extraneous undesired part is removed from the gold film in order to form a desired shape, but fail to teach the ion milling process can be used to clean a metal bump without removing an extraneous part from the metal bump.

The Examiner considers that “The ion milling process of Tsukamoto removes extraneous undesired gold layer, which would inherently remove micro contaminants from the patterned

contact point or metal bump. Consequently, the ion milling process of Tsukamoto does disclose cleaning the patterned contact point or metal bump.” ~ *See lines 7-11 in point 4, in the last Office Action mailed Mar. 27, 2007* ~

The above Examiner’s statement is incorrect because a cleaning process, as known by those having ordinary skill in the art, removes contaminants but does not remove an extraneous portion of the underlying structure.. Thus Tsukamoto’s etching process fails to anticipate applicant’s invention as claimed.

Withdrawal of rejection under 35 U.S.C. 102 (b) to Claim 27 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent Claim 27 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claim 30 patently defines over the prior art as well.

## **Section II:**

*Reconsiderations of the rejection of Claims 27 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 2003/0006271) in view of Bakker et al. (US 2004/0218157) are requested based on the following paragraphs.*

Applicants respectfully assert that the method claimed in Claim 27 patentably distinguishes over the citation by Chen et al. (US 2003/0006271) in view of Bakker et al. (US 2004/0218157).

Chen et al. teach a method for fabricating a circuit component comprising cleaning a metal pad, wherein said cleaning said metal pad comprises ion milling. ~ *See lines 1-6, in para. [0013]* ~

Bakker et al teach a method of cleaning a layer using ion milling. ~ *See paragraph [0054]*

~

However, Chen et al. and Bakker et al, singly or in combination, fail to teach, hint or suggest the step of contacting a metal bump with a testing probe, as claimed in Claim 27.

Withdrawal of rejection under 35 U.S.C. 103 (a) to Claim 27 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent Claim 27 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claim 30 patently defines over the prior art as well.

## CONCLUSION

Some or all of the pending claims are now believed to be in condition for allowance. Accordingly, allowance of the claims and of the application as a whole is respectfully requested.

It is requested that should the Examiner not find that the Claims are now Allowable that the Examiner call the undersigned at 845-452-5863 to overcome any problems preventing allowance.

Respectfully submitted,



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